

# ITEMS OF INTEREST.

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## *Notes from the Profession.*

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### DENTAL CASES, MECHANICAL DENTISTS, AND INDEPENDENT JOURNALISM.

C. A. WOODWARD, D. D. S., NEW YORK.

In the *Independent Practitioner* and in the *Archives of Dentistry* of December, 1884, there appears a "Report of a peculiar case of malformation of the jaws, and the treatment," by Dr. W. W. Allport, read before the "Section of Dental and Oral Surgery" of the American Medical Association, at its meeting, in October, of the same year. In the discussion on the paper, allusion is made to a report of a similar case, in which the treatment differed from Dr. Allport's case.

Having had some experience in this direction, and being, indeed, the operator in the case referred to in the discussion on Dr. Allport's report, I beg leave to offer a few criticisms on the treatment he adopted, and some remarks on collateral subjects connected with them. But, to secure intelligent comprehension of the cases, I will first describe fully my own operations.

Both Dr. Allport's and mine were adult cases of protrusion of the lower jaw. The treatment by retraction of that organ, or of the lower teeth and alveolar process, so often practiced on young patients, was, of course, impracticable here, for obvious reasons. In each case the deformity had, accordingly, to be met by other means; and in each case the means adopted were the same; *i. e.*, an artificial denture for the upper jaw, which should produce a new facial contour, by bringing the upper jaw forward to an apparently equal position with the lower. In Dr. Allport's case this was accomplished by extracting the upper front teeth and allowing the artificial piece to rest on the gum in this region, obtaining its entire support from the posterior teeth. In both of my cases (one only having, as yet, appeared in print,) the treatment differed in allowing the front teeth to remain in place, merely cutting off sufficient of their crowns to admit of the artificial denture properly

crossing them without interfering with mastication or the other uses of the piece. The following description will make my procedure evident.

My first case of this kind occurred in 1870, and was, briefly, as follows: The patient was about fifty years of age, and had lost all the molars and latent incisors of the upper jaw. The protrusion of the lower jaw amounted to one-quarter of an inch, in a horizontal direction, and when the jaws were closed, no teeth occluded. I regret that I have now no casts of the case, from which to have drawings made; but I have a portion of a duplicate of the appliance then made for the case. The denture was worn for several years (until the death of the patient), with perfect satisfaction to him. The treatment consisted in cutting off the remaining teeth in the upper jaw about one-half the length of their crowns, and fitting a platinum plate covering the teeth, and the labial portion of the gums, as though for an ordinary case. On this plate teeth were mounted in continuous gum, in such manner as to produce a most pleasing effect by completely removing the previous deformities. An irregular position of the artificial incisors, together with some gold fillings placed in them, rendered the whole of so natural an appearance that most experts would not have detected any sign of either previous deformity or present art.

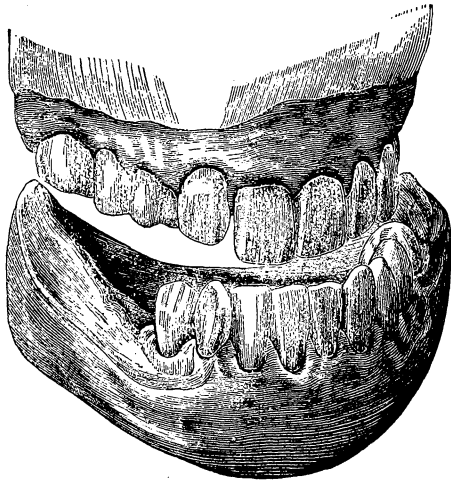


FIG. I.

My second case occurred in October, 1882, and was reported before the New York Odontological Society at its meeting of December, 1882, and published in the transactions of that society, with cuts; also in the *Dental Cosmos*, for October, 1883, page 541. I here give a fuller description of the case.

The patient, a lady of about 40 years of age, had, for twenty years, secluded herself from society, on account of deformed features. This was very marked, the horizontal distance between the cutting edges of the upper and lower incisors being three-eighths of an inch; while, as no teeth occluded, on closure of the jaws her nose and chin nearly met. She had consulted various dentists; who could devise nothing better for her than a rubber plate for the lower jaw; which, capping over and resting on the bicuspid and remaining molars (the caps being connected by a band behind the incisors) served as a resting and masticating surface for the upper teeth, and somewhat opened the bite, but did nothing toward removing the deformity occasioned by the protrusion of the lower jaw. (See fig. 1.)

I cut off the upper incisors, canines, and remaining bicuspid, about one-third (See fig. 2). This was done with little pain, and the teeth were afterward not very sensitive. I then constructed a platinum plate, struck up so as to cover and fit exactly the shortened teeth and the labial aspect of the gums.

Continuous gum teeth, with gums on the labial side, were now backed on the plate, and vulcanite used on their inner sides and for the palatal surface of the piece, thus making an appliance at once strong and quite light. This apparatus has been worn ever since with

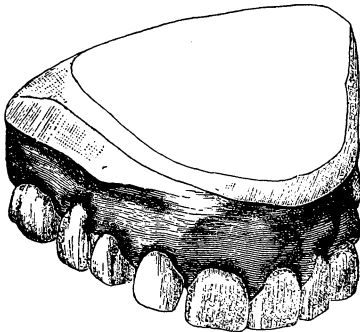


FIG. 2.

perfect comfort. The hold on the mouth is very strong, and the artificial teeth and gum so restore the facial contour as to have surprised several experts who have examined the case in the mouth. The appearance of the restoration is well shown in fig. 3.

In examining the case of Dr. Allport, it has seemed to me that the part of his treatment most open to objection is the extraction of the front teeth. By so doing he commits the entire support of a heavy denture, with all the added strain formed by the enforced lifting and protrusion of the upper lip, to the posterior teeth. The stress on these organs of this pressure, increased as it is by a leverage equal to the

length of the denture forward of the points of support, must be excessive,—and even dangerously so, both for the permanence of the supporting teeth and of the artificial appliance itself. Whereas, had he allowed the front teeth to remain (after having cut them off sufficiently,) and fitted the appliance nicely to *them* as well as to the back teeth, he would have gained for his piece a support equally safe and steady, and in no wise endangering the safety of either teeth or plate.

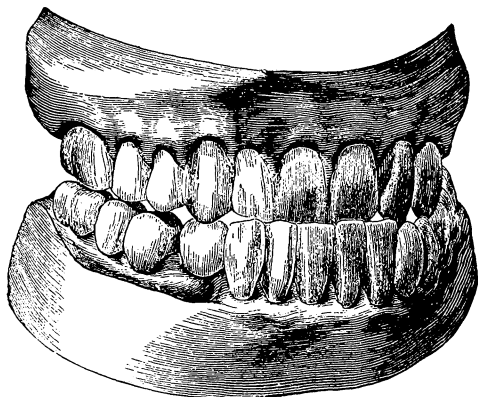


FIG. 3.

I have spoken of myself as the operator in the case referred to by Dr. Friedrich in the discussion on Dr. Allport's paper, although Dr. Friedrich did not name such operator. I do so because I am unable to find in print an account of any other case (similar to Dr. Allport's) except my second one, reported to the New York Odontological Society, and printed in the *Cosmos*, as above stated. It is true, the *Cosmos*, of November, 1884, prints a paper giving details of a similar case and operation; but, as the case there described is really *my own second case*, re-reported by another person as *his own*, I believe myself to be, till further evidence, the originator of this method of treatment for protruding lower jaws. This appropriation of my own case by another person forms the second subject of this writing, as named in its title.

In the manufacture of the appliance for my second case, I employed a person who makes a specialty of continuous gum work for the profession as my regular mechanical dentist did not make this kind of work. This person struck up a plate, which on trial in my office, did not fit. On this, he solicited my permission to have the patient go with him to his office, that he might more readily fit the plate than he could in mine. To this I acceded, and he there fitted the plate. But then, on some pretext, and without my knowledge or con-

sent, he made another appointment with the patient at his office, at which time he secured impressions of the mouth, from which were produced the models he subsequently exhibited. About a year after this (in December, 1884,) he read a paper before the First District Dental Society of New York, describing this case *as his own*, without any reference to *me*. I thereupon showed to the Society the facts in the matter, and his paper was denied publication in the Society's transactions. This brings us to the third subject mentioned in my title.

The transactions of the First District Society were then, as now, published in the *Dental Cosmos*. The paper just described as having been refused publication by the society had been sent (before such refusal), with other matter of that meeting, to the editor of the *Cosmos*, but was, with the discussion thereon, left out of the transactions for that month, by order of the president of the society, sent for to the editor of the *Cosmos*, and was subsequently returned by the editor, *not* to the society, but *to the writer of the paper*,—who, it is understood, *is an important customer* of the firm of dealers in dental goods, which also manages and publishes the *Cosmos*. The writer of the paper thereupon returned it to the *Cosmos*, in which it was at once published as an original communication, in spite of the facts—1st, that the *same case* had already been published in the *Cosmos*, fully illustrated, (vol, 25, page 544,) and in the transactions of the Odontological Society for 1883; 2nd, that the editor knew it had been withdrawn from publication by the First District Society, and was advised of the reasons for such withdrawal. And, finally, I was refused the permission of the editor of the *Cosmos* to expose in his columns this (to state it mildly) impudent attempt to obtain credit for another man's work.

Such are some of the practical results of journalism as connected with *some* dental depots. This, as well as many other instances which might be adduced, go to prove that a really *independant* journal is a crying want of the dental profession,—that is, a journal independent in expression of opinion, independent in scientific and professional status, and independent (as to its matter,) of *trade* in all its branches,—but *not* independent of *justice* and *professional ethics*.

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*Bleaching teeth.*—Dr. Howard Roberts, of this city, bleaches discolored teeth by filling the canal with powdered borax, moistened with Laboraque's solution of chlorinate of soda. The union of the two eliminates chlorine gas which has a strong bleaching property. This is similar to the process we mentioned some time since as practiced by Dr. James G. Palmer, of New Brunswick, N. J. Dr. Roberts says his practice was suggested by Dr. Palmer.

## WAGES OF ASSISTANTS.

Editor ITEMS OF INTEREST :

I wish to call your attention to something which appears to me very inconsistent in the dental profession.

I have been working in a dental office for some time as an assistant, understand plate work, can take entire charge of correspondence and make appointments, assist at the chair, and do other things necessary.

Circumstances render my return to Chicago imperative. My present employer very kindly wrote to a friend of his in the city asking him to take me into his office. This friend answered the letter saying he did not suppose I would be willing to work for the salary Chicago dentists gave, \$3 or \$4 a week, though when one has been long in an office they may get more.

In a dental magazine sometime ago I read what Dr. Kingsley's idea of an assistant was: "A woman of education and refinement, of pleasing manners and address, interested in her vocation and devoted to the welfare of all whom she may be called on to serve." And all this for \$3 or \$4 per week? Truly the millenium is at hand—for dentists. Can you suggest some remedy for existing state of affairs?

A CONSTANT READER.

[It seems incredible that any Chicago dentist of respectability so meagerly compensates a competent assistant as above intimated. Come, gentlemen of the Chicago dental fraternity, let me hear you bid for a first-rate assistant. Let us show this dentist that he does not properly represent the illiberality of the profession in Chicago. Who wants a good assistant, and would like to be put in correspondence with the above writer?

We would tell this lady, however, one secret of success, which we have spoken of to other young people who are playing second fiddle: Be contented with no subordinate position, as a permanent place, make it only a means to an end. Whatever business you are in, seek to prepare yourself in time to be its master; at any rate in some department of it. It used to be thought young ladies would make poor clerks in stores; now they are making delicate young men sniffle as they are obliged to hand over to their fair successors the yard stick and the account book. Young ladies were once supposed to be quite out of place in a dental office; now they are found to be the best of assistants, and we opine the time will come when many will take the chief places. One of the strongest competitors we ever had as a dentist was a lady practitioner. Mattie, when they talk to you about \$3 or \$4 a week get your womanly temper up, and tell them if they can not do better than that for a good assistant, you will come to Philadelphia, or some other good place, and become qualified to take the place of one of them altogether.—ED. ITEMS.]

## CAUSE OF PITS AND GROOVES IN TEETH.

DR. B. E. MEAD, GREENWICH, CONN.

Dr. L. C. Ingersoll wants us to "dismiss our theory and listen to his." His subject is one I have had to deal with often during the last sixteen years. The first was my own child; she was so sick with diphtheria, at the age of ten months, I thought she would surely die. When her permanent teeth appeared the enamel on the cutting edges of the incisors and first molars was nearly destroyed; the molars had four points each sticking up like heads of pins; the enamel was nearly all gone between the points. This was not caused by "acid fluid" at the margin of the gums. I watched them and helped the molars through, and know there was none present. I built amalgam on the crown of the molars, even with the pin head points, and it remained there eight years. The incisors I gradually cut away till I got them in pretty fair shape.

I have seen holes and horizontal grooves, some of them almost as perfect as though they had been drilled, and extending through the enamel. I had a case the other day with just one hole, the size of our smallest engine bur, near the center of the face of the left upper incisor. There was no discoloring; on applying a fine probe it was sensitive. Here is the effect: what was the cause? "Acrid fluid" did not do all this. Like cause, like effect. Dr. Ingersoll's "maple tree" talk proves about as much as the "cow-horn" theory which he ridicules.

May there not be some truth in the evidence of mothers on this subject? We might write a page on the difference between the "acid fluid" marks, and the marks caused by the imperfect deposit of the enamel by disturbance of the tooth while in a plastic state. Dr. Ingersoll well says: "Were there never any functional disturbances caused by disease the body would develop under this law in the same perfect symmetry"—thus admitting that disease will bring about "arrested development." And is not this abnormal "arrested development" more likely to cause abnormal marks on the teeth than the normal "arrested development" that he is trying so hard to prove?

As he says, the enamel is not all formed at once. According to the old theory (as he calls it) the growing tooth is gradually supplied with enamel till the tooth passes a certain point in its development. If the child is sick and takes no nourishing food for some time, and just barely pulls through, pray tell me where it is going to get the lime to make the mortar for the enamel building about that time? Again, might not a severe fever cause a formation of gas in that locality and disturb the enamel while it is in a plastic state? Or might not this fever cause a contraction of muscles and tissues which would disturb

the plastic enamel? In many cases it seems evident to me that the enamel was disturbed before it was calcified. Dr. Ingersoll will yet find quite as much truth in the cow-horn side of the dilemma, as on the maple tree-horn side, if he keeps at it with both eyes open, and gets Dr. R. R. Andrews to help him occasionally.

### THE MOST SUITABLE FOOD FOR THE DENTIST.

HENRY S. CHASE, M.D., ST. LOUIS, MO.

In the March number (1885) of the *ITEMS* is a very interesting and valuable paper, on "Food; Animal and Vegetable." The reading of this induces us to say a few words on the most suitable food for the dentist. A given amount of work accomplished necessitates a given amount of power furnished. Muscular work requires a greater amount of food than brain work. The office work of the dentist is very much less than that of the hodcarrier. The dentist needs food to the amount of not more than one-third, in nutritive value, required by the hodcarrier.

An excess of food, if not digested, produces a variety of bad symptoms, among them diarrhœa.

Too much food, if digested, causes an excess of blood, producing undue distension of the blood vessels, and congestion of the internal organs. The liver seems to suffer the most, for this gland is very large, important and active. The products of stomach digestion are conveyed by the portal vein into the liver, and congestion takes place when too much food is sent there.

The tendency of a healthy man in our profession is to eat in excess. The appetite is better than the will should respond to. No stimulant to the appetite should be used. It is worse than absurd.

Total abstinence from food for twelve or twenty-four hours is a natural stimulant and restorer of appetite. But to produce a *better condition* of the system sooner, take the juice of a lemon with water once in four hours during the fast. Persons exhausted by physical labor or long abstinence may take animal food, as it is sooner digested than vegetable food of the same nutritive value. And so, oysters, eggs, fresh beef, slightly cooked, are good in such cases. The same food value in the vegetable class would be whole meal of wheat: oatmeal, peas, beans.

For a quickly digestible food rice is often taken, and it can be used without danger of over-feeding; but it is of *slow* digestion, for it is not digested till after it passes into the intestines, and is retained in the stomach from one to two hours before it is received in the duodenum. Starch, sugar, fat, are *not* digested in the stomach but in the intestines. A regular vegetable diet will, other things being equal,



give to the dentist better health than a "mixed" diet. With rare exceptions, animal diet is *unnecessary* for any person. The same food strength may be found in wheat, oats, etc.

I have spoken of *fasting*. Well, it is very easy to fast, if you really desire to do so. And you will be surprised to find how easily you can "stand it," by taking a swallow of water whenever you feel a little "faint and gone."

Once on a time I wished to reduce my weight a few pounds. By eating seven ounces of food per day I lost eleven pounds in thirteen days. About this way: two ounces of meat, two ounces of bread and three ounces of potato or apple. One of my sons reduced his weight from 180 pounds to 150 pounds in twenty-six days. Some days he ate nothing; some days a tomato or a bit of bread. Both of us did our daily work, and never lost strength, for in the middle of our fast we tested it. When you have learned to fast, then you will feel that you are master of your body. Fasting will cure three-fourths of all diseases.

Fruits are peculiarly adapted to professional life. Their nutritive value is distributed through much bulk, and that is very good, for we are inclined to overeat. Fresh acid fruits are more wholesome than sweet ones.

Nuts are very hard to digest, and often cause alarming sickness. The Irish potato, and other vegetables not too hard for comfortable digestion, are good.

One can *overeat* by using whole wheat meal as surely as the use of beef or mutton; for that grain, when made into bread, is of equal nutritive value, pound for pound, as beef.

Fruit and "vegetables" are incompatible in the same digestion; the potato is the only exception. Let *one kind* of fruit make a meal with wheat or oat food. Vegetables and "the grains" can be used at another meal. Fruit is compatible with beef or mutton, or with "the cereals."

The liver wishes you to let alone sugars and syrups as a rule; and the liver would be very glad if you would let alone beer, wine and other alcoholic drinks. The best drink is found in fruits. A dentist would seldom wish for "a drink of water" if he would avoid salt and animal foods.

Physical exercise, for the sake of health, is within the reach of nearly all dentists. Sawing wood, working in the garden, at the gymnasium, "clubs and bells" in the office and at home.

Eight ounces of wheat meal, eight ounces of Irish potato, six ounces of fresh apples together represent the food value which will abundantly sustain me. I weigh about 135 pounds.

## HISTORIA DENTIS.

J. W. CLOWES, D:D.S., NEW YORK.

The spiciest article in the *Independent Practitioner* for February appears under the caption of "*Mirabile;*" and as my subject matter is somewhat related, I also have drawn on the classics for a name. In my boyhood it was not the fashion to extract *first molars* for the benefit of the rest of the teeth family. The *first molars*, therefore, had it pretty much their own way, and brought about by *crowding* and other *bad habits*, a great deal of disturbance and many troubles. Among these troubles of which I have personal cognizance, was an approximal cavity on the posterior surface of a left anterior bicusped of the upper jaw. Having come into this possession, at an early age, my attention was naturally called to the necessity of having it filled. It may seem incredible, nevertheless it is true, that this cavity was filled then, and, at intervals has been filled eight times since by seven of the most distinguished members of my profession, and the combined result of their labors, two weeks since, was *a very frail tooth and a dying pulp!* Being assured of this by my own feelings I requested a friend in the art to open and remove the cause of offense. *He did this skilfully from the top, going directly to the pulp.* Probing from this point the palatal branch was found lifeless while its labial portion was too vital for comfort; just here, *I should* have dressed with creosote, expecting, after a few hours, to find a painless condition. My friend thought otherwise and proceeded to break up the central labial and palatal tract of the dental interior. I confess to have hurt several persons in my life and he now assumed the part of their avenger, and acted it well! Having dressed slightly with creosote, a broach armed with Japanese bibulous was rotated among the fragments with intent to remove by wiping them out. *I suggested minute hooks and hoes of untempered piano wire* as best adapted to this purpose, but they were not employed. To the wiping, succeeded a compound application of floss, creosote and chloride of zinc gently pressed in, to remain a few days. *This temporary filling was certainly wrong and tended only to irritate the mangled remains of the still retained pulp!* There could be no peace for me, and there was none till I called on another professional friend, who, with hooks and hoes made a complete clearance of the dental canals. Having accomplished this, he was directed to dress with creosote and fill the roots with gutta-percha, the center with oxyphosphate, and the crown with amalgam. Carbolic acid and cloves took the place of creosote because, in one dental office, there was no *oil of smoke!*

Shades of the departed! Pioneers and heroes of the grand profession! how can this recreant son atone for his omisient sin! This veritable history has come down to the perfected filling of my tooth. Was I happy in its possession? *Not yet.* Some time before it was

opened to the pulp, there had been premonitions of a coming storm ! There were elements in this as in other storms that might, by proper means, have been modified and suppressed, but they were disregarded too long ; and now, after all that had been done, the tempest was upon me ! Navigation is an easy pastime on still waters and under sunny skies ; but cyclonic conditions require a stout heart and a steady hand to bring the vessel into port. Congestion set in about the palatal root of my bicuspid and without relief it was bound to go on to suppuration. There was at least a week of agony before me or a *shorter cut to comfort by my own right hand!* Behold me, then, at night *with knife-blade lance cutting to the maxillary bone, and after that, drilling through the bone to the apex of the root*, and coming off victorious. Having done this, I placed over the perforation a *well-heated fig* to mollify and soothe it. I kept it in place by the closure of my teeth, till the *storm subsided, to return no more.*

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#### ADVANCE IN YOUR PROFESSION.

Don't stand still, because some College has given you a parchment with D. D. S. inscribed on it. Don't think with its acceptance comes the end of all brain work, and that the hands must do the rest. What are hands and their productions without mind guidance? Think in your leisure moments, of some improvement, of instruments or manipulation that will benefit profession or patients. Anything that alleviates suffering will proclaim you a progressive practitioner—one in full sympathy with suffering humanity in your charge. Of course, the modern practitioner uses the latest pattern of forceps, doing without the use of a gum lancet. Very well ; but let me suggest an improvement to your forceps: with a small corundum wheel having a round edge, grind a short bevel on the inside edge of each beak, so that clasp ing the tooth wont break its fine edge ; then with a small oil-stone rub the outside edge till it is sharp enough to shave the thumb nail. This will not only be an advantage in extracting teeth, but the forcep will have a good deep hold of a crownless stump.

Of the 12,000 dentists in the United States, suppose that one-fourth or one-eighth should exert themselves and give us a new idea, what an addition it would be to the "Valuable Items." I have no patience with a young practitioner who is continually saying, "Well ; that is the way they did it at College," or "I was taught to do it that way, by Professor So or So." The Professors meant well enough ; but they expect you to elaborate on the ideas they gave you. Their instructions were intended as a nucleus or foundation training. Now go ahead, and conduct an honorable practice. Think and advance or turn aside to something you are better fitted for.

PORTLAND, Oregon.

NEY CHURCHMAN.

## ARTICLE VII—ANSWERS TO QUESTIONS OF THE NATIONAL BOARD OF DENTAL EXAMINERS, FOR THE BENEFIT OF DENTISTS AND OTHERS.

PREPARED FOR "ITEMS OF INTEREST" BY W. S. ELLIOTT, M.D., D.D.S.

*"What are the requisite properties of materials for constructing artificial dentures? Name the different materials in use, in the order of their value."*

The loss of the natural teeth leads directly to the consideration of such artificial substitutes as will best subserve the highest conditions of healthful existence.

The individual requirements are many and these must be met, so far as it is possible, without compromise.

Presumably, it is not the object of the questioner to make comparison of the various materials for making artificial teeth, for it is universally acknowledged that those furnished by the leading manufacturers of the world are so nearly perfect that a knowledge of what has gone before would be of no avail in practice.

The question refers more especially, to the materials used in connection with the teeth proper, whereby these are retained in situ in the mouth; and the conviction at once obtains that whatever material is selected it must not, in any sense, be detrimental to the tissues of the mouth. It must not, in any manner, interfere with the process of nutrition.

The first thought of those, whose attention was directed to the matter, was that bone or ivory, being products of the animal body, would prove the most compatible; and being closely allied in properties to the natural teeth, they would supply the place of these organs and answer the purposes of speech and mastication.

This was very well, so far as it went. The shaping and adapting of a mass of elephant tusk, or sea-horse tooth, called for considerable skill in carving, which the results sometimes obtained were truly marvelous. The comparison, however, instituted between a devitalized bone and the living natural teeth was illy made, for it was only a comparison of life with death; and this subsequently became quite apparent, since the porosity of the substance and its want of force to resist chemical reduction rendered it inadequate to the purposes intended.

The invention of porcelain substitutes was a consequence of the evident faults of the ivory, or of defunct human teeth; but this invention, in itself, did not estimate, so completely, the desirableness of improvement in the method of attachment, though it led to the adoption of numerous contrivances to meet the accompanying necessities.

The properties of the precious metals were well enough known to be selected as suitable for plates on which to mount the teeth, and in

the progress of years their comparative merits became pretty well established. Thus the stability and thermal conductivity of 18 or 20k. gold is fully appreciated; the latter feature being one eminently desirable, if any extensive area of the mucous surfaces is to be covered. Again, its resistance to chemical reaction is favorable to its permanent integrity. On the other hand, its submission to the electric force is considerable and the disparity thereby existing between it and the living teeth is often detrimental to these organs when continued in immediate contact. This destructive influence may be, in a measure, mechanical, but it is principally through the powerful agency of electrolysis whereby the equilibrium of the vital energies is disturbed and the elements of the living matter set free to enter directly on a career of chemical affinity.

The same remarks may be made relative to silver, which is one of the best conductors of the electric current known. Here the electrolysis is very markedly proven. By the expenditure of the electric energy, the sulphur of the albuminoids is set free to combine with the silver, as seen in the discoloration of the plate—silver-sulphide.

The use of platinum, I believe, affords some immunity from the defects of gold and silver. The electric conductivity is very much less apparent, and I am not aware that platinum bands, clasping the teeth, are especially destructive; I think they do not exert that objectionable influence ascribed to the other metals.

The introduction of Allen's continuous gum dentures, many years ago, necessitated the combination of platinum with the "body," and, to this day, the beauty of the dentures thus constructed have never been surpassed. The process demands an advanced degree of æsthetic culture and manipulative skill for its highest attainments, and few there are who have reached the standard set by the venerable gentleman, who, for nearly half a century, has been the educator of the profession in this department of dental practice and who has striven valiantly to attain a high degree of perfection.

How limited has been the appreciation among the thousands of practitioners now living, of the worthiness of Dr. Allen's efforts. This is shown by the almost universal adoption of cheaper methods to please the masses which frequently compromises the beauty of the "face divine," and often injures the health.

The culture of a high order of talent in the workman, and the education of the people to a higher taste, have been made subordinate to the spirit of gain, and thus real advancement has been slow.

Rubber and celluloid are materials of easy manipulation, yielding readily to limited manipulative skill, but they have inherent faults that must necessarily prevent the best results. We estimate the deficiencies from a physiological standpoint. The mucous membrane

often suffers the want of normal stimulus in consequence of the non-conductivity of these substances. Thus do they fail to meet this very essential requirement; one always demanding the highest consideration.

It would seem, then, that the continuous gum plates met every possible indication; but not altogether so. The difficulty now arises from its mechanism—the real impossibility of making a perfect co-adaptation of the plate to the mouth, and of always maintaining even an approximation to a perfect fit. Ordinary observation will convince us that a plate forged between two opposing dies of yielding metal cannot be true to the undisturbed plaster model. This, however, does not render the process impracticable in skilful hands, as is abundantly proven by the records of many able practitioners. For partial cases the porcelain-lined plates are not adapted.

Would *casting* directly on the plaster cast be effective?

Dr. Blandy, many years since, demonstrated the feasibility of making a perfect copy of the model by adopting the usual method of founders in duplicating their patterns. The results were all that could be desired in so far as the correct adaptation was concerned, but the metals or compounds used did not seem to meet the requirements of strength and durability.

Many years have passed since, and innumerable have been the experiments to remedy the still existing defects. Drs. Moffit, Weston, Watt and Reese have been foremost in the van of demonstrators, and, of these gentlemen, no one has been more industrious or has accomplished better results than Dr. Reese. He uses a compound of pure gold, silver and tin which possesses sufficient strength to adapt it to partial as well as full cases. The compound is perfectly compatible with the mouth in every respect, and the castings are remarkable for their fineness of delineation. Perfect results, however, depend on the strict observance of many minor points in the casting process. The ordinary methods of founders brought nothing but failure. The flow was imperfect; the crystalline texture lost, and gray, granular spots appeared which were wanting in strength. Dr. Reese, however, was not dismayed. He persistently tried new ways, and finally, after years of earnest effort, is able to retain the proportions of his compound, and yet obtain perfect castings. For general practice I am free to give the Reese metal the preference, and do give it the highest place in the order of value.

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*In renewing my subscription*, I feel that I am only giving you *gold* for the *golden facts* contained in your useful journal.—A. H. HILZIM. JACKSON, Mis.

## DENTISTRY IN FRANCE.

DR. S. H. GUILFORD, PHILADELPHIA.

Less than a hundred years ago, a few men in this country received their first practical knowledge of dentistry from a Frenchman named Le Maire, and an Englishman by the name of Whitlock, who, by fate or good fortune, had drifted to these shores. They knew little of the art, but that little seemed a great deal to the few Americans who knew less. To-day how great the change! France, in three hundred years, has gained but little in practical skill, and England not much more; while America stands the acknowledged mistress of the world in this dignified labor, first called a trade, but now a learned profession. There are, no doubt; many reasons for this peculiar instance of a pupil outstripping his teachers, but two prominent features are easily recognizable. One is the practical turn of mind and natural faculty of invention of the native American, which has led him to leave to others largely the investigation of the theory and cause of the evils existing in the oral cavity, while he devotes himself more immediately to the more practical part of their correction. The other is the liberality which characterizes the members of our profession here, leading them to associate for the interchange of ideas, and this in turn leading to the establishment of dental colleges, where the best of instruction is freely imparted, at a price barely sufficient to cover the expenses of conducting the institution.

About forty years ago, dentistry had already advanced so far in this country that a few of our best men determined to seek new fields of labor in foreign parts. Being good men and skilful, they soon succeeded not only in reaping a large pecuniary reward for themselves, but also in shedding professional luster on the land from which they came. Their success led others to follow their example, till to-day there is scarcely a civilized country on the face of the globe where American dentists are not to be found in all the chief cities. Wherever they are, they seem to be held in the highest esteem, and their services are almost universally sought in preference to those of their competitors who are "to the manor born." The preference for American dentists, so long and patiently endured by French dentists, is at last beginning to excite their jealousy; and they are endeavoring to bring about such legislation as will prevent foreigners from practicing there, unless they hold diplomas from the Paris College of Medicine, just as is now the case with physicians. The high reputation which we enjoy everywhere abroad is most gratifying and flattering to us, and we are indebted to it for the fact that the first men who went abroad to practice were representative men. So many have gone abroad of late that perhaps quite naturally there are among the number many who have not stood in the front rank at home, and

who, it is to be feared, will not add to our national reputation where they go, but will rather detract from it.

While we have here many colleges for the instruction of beginners, England has but one, and the rest of Europe, so far as I can learn, none. France has not even yet a regularly-organized dental society. While I was in Paris, the first meeting of dentists took place there, for the purpose of having the different members of the profession in that city become acquainted with one another, with the intention that this meeting should lead eventually to the organization of a dental society; and this ultimately result in the establishment of a dental college. Before this meeting, I was told the great majority of dentists there did not even know one another by sight.

I found, while the French dentists were reasonably skilful in the mechanical branch, they were very deficient in the operative. With them the insertion of a good gold filling seemed almost an impossibility. They preferred to work with the plastics because of their greater success with them. Among these, the oxy-chloride of zinc and the oxy-phosphate seemed to be the favorites, just as amalgam is in the British Isles. The largest dental dealer in Paris told me that he sold more of the zinc plastics to them than any other filling material.

In the mechanical line rubber seemed to be with them the favorite base; and while they also did a great deal of gold work, they had not as yet taken much to the use of celluloid. The prices obtained there for mechanical work are quite large, and quite out of proportion to the small prices they charge for operation on the natural teeth. Of course, the French dentists have eminent men among them, such as Rottenstein, Magitot and others, but they are men who are noted not for their skill in filling teeth, but in their pathological researches and writings, and their attention to the surgery of the mouth.

I was quite struck with the devotion of the French people, generally, to their professional advisers, and that once having placed themselves in their hands, they were very slow to have or make a change. On this account a French practice grows to be a very real and permanent thing, and is as easily turned over to a successor as any other business. People there are in the habit of employing the same dentist and physician, or their successors, as their fathers or grandfathers were in the habit of going to. Different from us in this respect, where a successor, in buying a practice, does not know how many of his predecessor's patients will come to him, with them their practice possesses a real money-value, for they feel sure that if they can only retain their predecessor's name, the same way and the same office, the patients will come to him just as they did to the one who went before him. While there, I often heard dentists speak of



the selling value of their practice. As to the quality of the teeth possessed by the French, and their liability to decay, I found them generally very much injured by neglect; still so far as my observation went, I found the quality of teeth good, perhaps a little better than the average of teeth in this country.

Contrary to my expectation, based on what I had previously heard from others, I found the French to be very good patients, indeed; at least such as it fell to my lot to work for. They sat patiently, were much interested in the many things that seemed new to them, bore pain quite bravely, appreciated all you did for them, paid their bills cheerfully, and last but not least, thanked you very profusely for your kindness in serving them.

All in all, my short professional experience with the French people has been an exceedingly agreeable one in all respects.—*Trans. Odontographical Society of Penna.*

### CAUSES OF IRREGULARITIES.

DR. NORMAN KINGSLEY, NEW YORK.

[Part of paper read before the Odonto-Chirurgical Society of Scotland,]

With advancing civilization there is an apparent increase of deformities of the dental arch.

In the higher social scale it is exceptional to find a young person with a perfectly developed and regular row of teeth, set in a well-formed and rounded arch. More commonly, departures from this type will be found of every grade, variably pronounced, exhibiting some of the phases of narrowed jaws, or teeth protruding, overlapping, or crowded in every conceivable mal-arrangement. In many instances the cause has some direct connection with other evils that seem inseparable from a state of high civilization.

A close observer for a generation will have seen a multitude of cases which had no apparent local cause, were not of an inherited origin, and could only be attributable to constitutional conditions developing in the individual.

As a general statement, the finer the nervous organization and the more precocious or brilliant the intellect, the greater will be the tendency to oral deformity. The converse is true of feeble-minded people, who, having a fair physique, will show well-rounded jaws and regular dental arches. The exceptions to this statement are found among those cases of hopeless idiocy where the whole organization, as well as the intellect, is depraved.

Many peculiarities are of an inherited origin, so far as the individual is concerned; but what caused the initial departure from a normal type in preceding generations would be impossible to determine. More readily transmissible, perhaps, than any other deformities of the

human organization, are dental irregularities. Sometimes, departures from a normal type in the parents re-appear in the children in an aggravated form.

Irregularities that require treatment never appear in the deciduous teeth. The deciduous dental arch is always well-formed and symmetrical. It is only in the second set deformities make their appearance, and it is exceptional that such peculiarities can be foreseen and prevented. It cannot be determined with any certainty before eruption that a dental arch is going to be abnormal, the causes being generally hidden and remote.

The normal type of the dental arch describes a regular line. The arch may be wide or narrow, varying somewhat in individuals or races, but the line will be an easy, graceful curve, without break or tendency to form an angle. Within certain limits, a narrow, dental arch, as associated with certain features, may become the perfection of beauty; while, with another form of head and face, the widest development may be equally pleasing.

That recognized now as the standard or full measure of beauty, as well as utility, is not unlike that which existed in the remotest historic ages, nor do they differ from that now exhibited among all communities not degenerated by luxury or vice.

Abnormalities include such a shape of the arch as is not in harmony with the surrounding features; all crowding and twisting of the teeth, and all departures from a regular line in their positions. One form of irregularity seems to be due to unwise or premature extraction of the deciduous cuspids of the upper jaw. In the ordinary course of nature, these teeth should be the last to drop out. If extracted long anterior to their period of shedding, the permanent bicuspid are liable to encroach on the domain of the cuspids, and thus deprive them of their place in the arch. Such a mal-position can be foreseen and prevented.

Another abnormality of the superior dental arch which can be prevented is the result of thumb-sucking, or its equivalent, in the earlier years of childhood. The effect of such a habit is to protrude all the teeth in the front part of the mouth. This deformity will not show itself till the eruption of the permanent teeth, sometimes even after the practice which caused it may have ceased. In one instance which came under our observation, a mother of good, social position had nursed from her breast a daughter till she was nine years old, the result being that the six upper front teeth were protruding so that the lips could not be closed. But a large proportion of dental irregularities cannot be predetermined with certainty even where there is an hereditary tendency, and can be corrected only when they develop.

## AT WHAT AGE TEETH SHOULD HAVE THE MOST ATTENTION.

DR. GEO. A. MILLS, BROOKLYN.

I regard the time between the ages of fifteen and twenty-one, particularly in young ladies, as the most critical period we have to deal with. Young girls passing through the age of puberty are in an extremely sensitive condition of body and mind, and that has a great deal to do with directing, and causing divergence in all the operations of growth and repair. It is a period in which we should be very careful and work understandingly, for we can be the means of doing much mischief. I speak more particularly of young girls. Boys are bad enough. The whole matter of the treatment of children's teeth is something we ought to be patient about and discuss fairly, for on it lies the ultimate success of our practice. If it is admitted that every divergence from nature's laws causes irregularity, disturbance and harm, should we extract the temporary teeth? The careless extraction of the temporary teeth, as well as of the permanent, is doing great harm. I question somewhat the idea of feeding the teeth. There may be something in it that I do not understand. I am greatly averse to the feeding of meat to children. Particularly with the American people, I think we are feeding too much animal food. I am acquainted with several persons who are vegetarians in the extreme sense of the word. I often notice these persons, and I find they are what we call conservative men, and that they have a higher standard of organization. But if you are going back to follow out nature's laws, you must go clear behind the growing child into the germinal matter. The sexual relation is a large and important question. The most eminent neurologists in this country are settling down on one general principle, that all diseases have their origin in nervous degeneracy. We must go back and look this thing in the face. The time is coming, perhaps, when those who come after us will understand this better than we are able to do. One thing in this connection is settled,—more highly organized beings are subject to a greater degree of deflection from outward circumstances than lower organizations. We know that in this country, there is a high state of nervous organization among the people, that there is all about us, and in all circumstances, a high-pressure condition largely due to nervous causes. Now, a very large proportion of the children born are generated under these conditions of nervous deflection. Take the germinal matter, the spermatozoa, in a highly nervous organization, and we know very well that this germinal matter is very far from being in a normal condition. It is subject to the pressure of its atmosphere, and the condition of this germinal matter and the circumstances under which the child is generated have very much to do with the condition of its mind and body in the future. A great many people in the community are little

more than bundles of nerves; and their trouble commenced nine months before they were born. There are marked instances on record of difference in children who were generated by the same parents under different circumstances. It sometimes occurs that the first child is the best child, and sometimes the last child is the best child.

Now, the reason some are better than the others is that they were conceived under more favorable circumstances. When the progenitors are first married is one of the happiest and most favorable periods for generating well-organized children; they are under new relations of life, generally in good health, filled with all kinds of hopefulness, everything is lovely, and children conceived under such circumstances are likely to be well organized. But go farther along in life and the time comes when there is an adverse change in the circumstances of the parents, financial embarrassment, excessive toil, and many cares harass them, and the children then generated reflect the change in circumstances. Children generated during times of financial crisis, when there is commercial disturbance from top to bottom of society, with sudden loss of wealth and comforts, show a marked deflection from the normal condition, due to a like condition of the germinal matter in their progenitors, caused by sympathy with their changed circumstances. It is a falling of the mercury, and the children, when born, are absolutely certain to evidence it.

Consider the man who is not married till he is forty years of age, and then begets children. This man is in a state of maturity, and the children generated under such circumstances are very often of an improved standard of organization. I remember a statement I heard a woman make once, which I thought rather remarkable, as coming from a woman, that when we get to the point where children are properly generated, they will never need any regeneration. The meaning of this is, that when we understand nature's laws and conform to them, when everything is working in harmony, then we get a high state of organization, spiritual as well as animal. Nothing can be truer than this. We are passing through a transition state; the animal and the spiritual in us are struggling with each other. Go back to the pre-historic ages, when the race lived more on the animal side, —more animal and less spiritual,—and you see, as shown in the skulls belonging to that period which are preserved in our museums, a first-class type of teeth. In the skulls of the Romans you see a very perfect development of teeth. Then there was a deflection from this standard, and you see in the skulls of those ages the types of all the dental diseases which we see to-day—caries, necrosis, alveolar abscess, etc. We must be patient, striving for what is possible, not for what we would like to be, and encouraging the young men who are coming to take our places. As we get on a higher plane of civilization,

where nature's laws will be understood and observed, we shall more clearly see that prevention is better than cure.—N. J. DENTAL SOCIETY.

### INCONVENIENCES OF A DENTAL PLATE.

#### Editor ITEMS:

Six weeks ago, I put in a full set of upper teeth on black rubber, lined with Robinson's felt-foil for a patient who has worn rubber for years. Three weeks ago the patient complained of having too many nerves in the roof of her mouth, also that her lower teeth were constantly on edge while wearing the plate.

I found she experienced a series of galvanic shocks over the entire surface covered by the plate, which became more intense while eating, disappeared entirely on removal of plate, and the lower teeth would again feel natural.

No fillings or cavities of any kind were in the mouth. The felt-foil, after one of these shocks presents a brassy appearance. I prescribed alkaline mouth-wash and powder, but they did no good. Have you heard of anything like it?

Yours truly,

J. E. MILLER.

ST. PETER, MINN., 2d Mo. 25, 1885.

[We think neither the kind of plate nor the lining had anything to do with this lady's trouble. Persons of nervous susceptibilities will have all manner of experiences while first wearing a set of teeth. Among the most prominent is a feeling of nervousness, soreness and pain, "as though the artificial teeth were alive." The sensation is not imaginative, though they fail to locate it right; instead of being in the new teeth it is in the natural under-teeth—it is a case of reflective sensation. The new teeth are like so many stones put in the mouth for the under-teeth to grind on. No wonder their own teeth are sometimes "on edge," and that they experience many other nervous and disagreeable sensations; and it is no wonder they sometimes feel like ascribing these feelings to the new teeth and the plate to which they are attached. Besides, in addition to the sensations described, the pressure and suction of the plate will have its unpleasant effect on the mucous surface, and the underlying nerves it covers. Is it strange that all these annoyances should subside when the plate is removed? The only remedy is perseverance in wearing the new plate.

If the plate is lined with anything but gold or platina, of course, there will be discoloration, but this is no special harm.—ED. ITEMS.]

It is one thing to know how a thing should be done, and another thing to have the skill to do it.

## BACTERIA TWO CENTURIES AGO.

667 Fifth avenue, NEW YORK, Feb. 21, 1885.

DEAR DOCTOR WELCH :—The enclosed clipping from the N. Y. *Times* of this date contains more information on the germ subject than I have seen elsewhere, even in lengthened and philosophic discourses. It tells us that they exist—that they have been seen—their shape and their movements; but modestly refrains from attempting to *impose on our credulity by asserting that they make meals of our teeth or cause them to decay*. I thought you might like to embalm it in the *ITEMS* together with my own humble opinion on the “bug theory.”

—J. W. CLOWES.

*(From the London Times.)*

“The Amsterdam *Allgemein Handelsblad* publishes a communication from Prof. E. Cohn, of the University of Breslau, who recapitulates the substance of a correspondence of the celebrated naturalist Leeuwenhoek with Francis Aston, of London, a member of the Royal Society. Leeuwenhoek, writing from Delft, in 1683, reports that among the debris of food remaining between his teeth he had discovered, with the aid of the microscope, living organisms moving with great activity. He distinguishes various kinds among them, which he describes so precisely that they would be easily recognizable. One, which occurs least frequently, resembles a rod, the bacillus; others, twisting in curves, are bacteria; a third kind, creeping in snake fashion, is the vibrio *ugula*; another kind, of extreme minuteness, resembles a swarm of flies, rolled up in a ball, and is evidently the micrococcus; its movements cannot be traced with certainty. He says this species seems to be made of parallel threads, varying in length and remaining immovable, while other species move in and out through the web. Leeuwenhoek marvels that these things could live in his mouth notwithstanding his systematic habit of cleansing it. He instituted observations which showed that they were also to be found in the mouths of other persons. Some years later he could not discover any traces of those minute organisms, and he was led to attribute their disappearance to the use of hot coffee. But shortly afterward he rediscovered them as lively as ever. In September, 1692, he sent some sketches of them to the Royal Society. Prof. Cohn observes that it would seem from this correspondence that the knowledge concerning those minute entities made no advance for nearly two centuries, and he remarks on the wonderful skill with which Leeuwenhoek used the imperfect instruments of his time.”

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*If you would be rich diminish your desires; be contented with your needs, and enjoy your possessions more than your anticipations.*

## INFLAMMATION, AND ITS RELATION TO CARIES.

DR. HENRY SEWILL, ENG.

Dr. Sanderson's definition is this :—"Inflammation is the aggregate of those results which manifest themselves in an injured part as the immediate consequences of the injurious action to which it has been exposed." Dentine being perfectly passive under every form of injury—unless it be true that it inflames during caries—must, I repeat, be considered incapable of inflammation ; a term which we may now note includes morbid action of every kind due to injury. We know that dentine violently broken or lacerated does not inflame ; we know a broken exposed surface of dentine, on application of an irritant like solid nitrate of silver does not inflame ; and we know that we may drill a hole into healthy dentine, or expose a surface of healthy dentine after excavating a carious cavity, and forcibly wedge on to that bare surface a foreign metallic mass, a filling, and leave it there, and the dentine will not manifest inflammatory action of any kind. Yet by those who maintain that dentine inflames during caries, we are asked to believe that in this disease the irritation of weak acid, barely powerful enough to slowly dissolve out the earthy constituents of the tissue, is able to induce a morbid process which the more severe injuries I have instanced are quite powerless to produce.

The phenomena of inflammation are essentially the same *mutatis mutandis* in whatever tissue they appear, and there is no suggestion that the phenomena would differ in the case of the teeth except as modified by anatomical peculiarities of the part. To judge what phenomena to expect we must examine the pathology of inflammation in tissues most nearly homologous. In bone, inflammation leading on to caries is manifested by increased vascularity ; then follow enlargement of the Haversian canals and disappearance of the canaliculi, while the cancelli are enlarged and filled with inflammatory exudation, and the bone is thus softened. When the inflammation is on the surface, the periosteum is the seat of the greatest vascular activity ; when deeper,—in the penetrating vessels and the endosteum,—the inflammation may terminate in abscess and in necrosis as well as in caries. Caries is the stage which follows the softening stage of inflammation. Suppuration takes place, the exudations break down into pus and dissolve the connection between the solid particles of bone and their fibrous stroma, and the bony particles are carried off from the surface mingled with the purulent discharges.

Ulceration of cartilage commences by inflammation of the external vascular connections of the tissue—as in synovial membrane—or spreads from within, from the surface of subjacent bone to the exterior. Vascular loops and granulations spread over the surface and gradually erode the tissue ; and the process of disintegration is assisted by inter-

stitial changes in the tissue elements—the cells—similar to those which occur in degeneration and which I have already described.

In the cornea the pathology of inflammation and ulceration is not very dissimilar to that of cartilage. Intrinsic tissue changes, and the presence of inflammatory corpuscles—leucocytes—in the corneal structure have recently been demonstrated as the very outset of inflammation, and it is yet a very moot point whether these corpuscles are always migratory, finding their way from the vessels surrounding the cornea, or whether they may not sometimes be produced by germination from corneal corpuscles—cellular elements of the corneal tissue. Inflammation of the cornea of every form is always speedily accompanied by visible vascular disturbance. Vessels around the margin gradually increase in size and invade more and more of the corneal tissue, passing beneath the epithelium, till perhaps the whole surface is visibly injected. This may terminate in formation of pus—abscess—in sloughing or in ulceration. The only points which we need note are that in all these structures—bone, cartilage, and cornea—inflammation is characterized by two indispensable features, namely, exudation (or at least the presence of inflammatory corpuscles) and vascular activity, without which any process of true caries or ulceration is impossible. Here we must be reminded that enamel and dentine are anatomically quite unique, and are not closely comparable to any other tissues. In their physical and chemical characters they most closely resemble dense bone; but even the densest bone has a free vascular supply, while these dental tissues have none. Between them and other non-vascular structures, such as cartilage and the cornea, there is the vast difference that the latter are largely composed of cells, are constantly undergoing nutritive changes, are capable of carrying on morbid processes and of undergoing intrinsic degenerative changes.

Dentine is void of vessels; the nearest, those of the pulp, are separated from actual contact by the odontoblast layer; dental caries does not commence in proximity to the vessels, but at the surface—the point furthest removed from vascular influence, and no vascular activity accompanies the disease. There are no tissue elements, if we except the fibrils, which are capable of interstitial change like the cells of cartilage and the cornea. We know that caries goes on unchanged when the pulp, and therefore the fibrils—which are no doubt protoplasmic—dead; if inflammation corpuscles are present in carious dentine they must arrive there by traversing intervening dentine by way of the tubes from the vessels of the pulp, a supposition which is absurd. Unnecessary as they are to add to the overwhelming mass of evidence adducible to prove that dentine is absolutely passive under the disintegrating process of caries, all these further considerations at least serve to show the shallow superficiality of the writings. The



errors of the few observers who, like Neumann, have adopted the theory I assail, have arisen from their ignoring the wide paramount considerations which render its adoption impossible, and from mistaking the real significance of apparent change in the tissues. The masses of organisms, for instance, in the dilated tubes of carious dentine readily taking up color might no doubt be easily mistaken for inflammation corpuscles, particularly by observers writing at a period before micro-organisms was suspected in such a situation, and before their real nature had been ascertained.

Lest there should arise the least confusion, it will be well, before finally leaving the subject of inflammation, to explain the exact relation which the inflammatory episodes accompanying the later stages of caries really hold to the disease. These episodes are inflammation of the pulp, periosteum, and cement.

With rare exceptions, caries, unless checked by art, having once attacked a tooth, progresses with variable rapidity till the tooth is destroyed. In its progress there comes a time when the pulp chamber is laid open, and the pulp exposed to the atmosphere and other sources of irritation. It is not necessary for my present purpose to enter into a lengthy examination of the pathology of the pulp. The pulp has not, like enamel and dentine, a unique pathology—one totally differing in its phenomena from every other tissue; and the pathological changes which take place in an exposed pulp are the result of inflammation, and are in their nature essentially the same as similar inflammatory processes in other vascular tissues. It matters not whether an iris, a synovial membrane, a lung lobule, or a dental pulp be the seat of the morbid action, these processes are the same, modified only by the anatomical peculiarities of the part. It is probable that inflammation always speedily supervenes on decay opening the pulp cavity, and that it often precedes such an actual exposure of the pulp. We know that a joint or other analogous cavity, wounded, or opened by disease, will speedily become inflamed, if not kept aseptic by art. The condition of an exposed pulp might be, perhaps, broadly compared to that of the tissues exposed in such a wound or in a compound fracture. Septic matter may slowly percolate to the pulp through an intervening layer of dentine; and we know that organisms may proliferate along the dentinal fibrils through dentine which to the naked eye appears healthy. A single drop of septic matter, a single bacterium inoculating the pulp, would certainly originate inflammation, and these facts explain the occurrence of inflammation even before decay has quite reached the surface of the pulp. Dentine of inferior structure, containing much organic matter, and numerous imperfectly calcified spaces, would, of course, allow more easy passage for septic material. In ill-made teeth the pulp cavity often extends

upward in the crown—sometimes by a narrow process only—to a point abnormally near the surface. In such teeth also numerous interglobular spaces are commonly found in the dentine, and thus tissue readily permeable by fluids extends almost from immediately beneath the enamel to the pulp cavity. This accounts for the readiness with which inflammation often supervenes in the pulps of badly made sixth year-old molars at an early stage of decay, or after excavation of the cavity, and insertion of a filling in childhood. There is, however, an “impression” on record that in these instances inflammation really starts in the dentine. Exposure to changes of temperature through partial removal of the tissues, its normal covering, no doubt suffices in some other cases to excite inflammation of the pulp. The vascular connections of the pulp and dental periosteum are so intimate that inflammation, as one might expect, always extends in the later stages from pulp to the root-membrane and cement. Its cement is identical structurally with osseous tissue, and its periosteum with the ordinary covering of bone, and the phenomena of inflammation which these tissues display, are essentially the same as those manifested in other osseous structures. The only point in all this, really pertinent to my subject, is that inflammation of pulp and periosteum and cement are not only in no way concerned either in the cause or progress of caries, but are themselves the results, the sequels, of the disease.

There may be a spontaneous arrest of caries; that is, in rare cases the disease may come to an end without treatment. Such cases are of the following description:—The decay occasionally commences on the grinding surface of a tooth the external portion of which alone is of inherently defective structure. The occurrence is most common in honeycombed teeth. The decay spreads over the whole of this surface, which gradually breaks down till the denser, better formed, dentine beneath the defective enamel is laid bare. The surface so exposed is often but little sensitive, and being used in mastication, constantly swept by the tongue and washed by saliva, becomes in time worn smooth and highly polished, and frequently endures for many years in that condition without any renewal of the disease. This simple explanation is quite enough to account for these cases, the probable nature of which is confirmed by the great success of the operation of filing the teeth, which is often practiced for the arrest of incipient decay in imitation of the natural process. In incipient caries of the lateral aspects of the front teeth the treatment may be in many instances confined to cutting away the diseased tissues, polishing them and leaving them of such a form that they may not allow the adhesion of foreign particles, may be readily cleansed, and constantly subject to friction during mastication. As usual, in instances where the nature of phenomenon may not at sight be explicable, a writer is

ready to come forward with his "impression," and record a far-fetched groundless explanation that the spontaneous arrest of decay was due to vital reaction in the dentine, to consolidation of the tissue through renewed calcification. The explanation which I have given is sufficient; but if it were not, that would be no justification for the acceptance of the other hypothesis, the impossibility of which I have in previous pages demonstrated.—*British Dental Association.*

B. H. CATCHING, D. D. S., AND "LETTERS OF A MOTHER  
TO MOTHERS."

DEAR DOCTOR WELCH:

Mrs. M. W. J. informs me that you have undertaken to publish her book, "A Mother to Mothers," and I see from the March *ITEMS*, that you have them ready. I am glad you are doing this. The book should be in the hands of every intelligent mother. [We think it should be in the hands of the unintelligent as well. ED.] You have, I fear, put the price too high, to accomplish the greatest amount of good. Of course, I cannot be certain, not knowing the cost, and not having seen a copy of your edition. My advise is to put the price as low as possible, and depend on large sales and small profits.

I feel that if I accomplish nothing else in dentistry, I have done a good part in getting such a book for distribution to our patients.

Yours very truly,

B. H. CATCHING.

ATLANTA, GA., *February 25th, 1885.*

[We are glad to receive just such a letter, from just such a source, and, without the Doctor's permission, we have given it a place in the *ITEMS*, that we may here reply to one or two points.

As to the price of the book, we have given it a good deal of thought. We have printed a book of 103 pages, on nice paper, with expensive illustrations, presenting a very neat appearance, and costing one-third, or one-half more than if we had thought only of cheapness.

We have started with a 5000 edition, and put the price, post-paid, at 25 cents for a single copy. And to encourage dentists to give them to their patients, or be able to sell them at a profit, we sell 10 copies (post-paid), for \$2.15; and 100 copies (not post-paid), for \$17.00. Now, will not this accomplish all Dr. Catching asks for? We think it will, and the orders already received encourage us to believe we are not mistaken.

Brother Catching has not placed too high an estimate on the value of this work, and he may well be proud to feel it was through his efforts that "Mrs. M. W. J." was induced to write these "Letters." And the authoress is not forgetful to whom the credit belongs for starting her in this good work, for on a full page, she puts but a few lines, and these lines dedicate her book "*To B. H. Catching; D. D. S.*" —ED. *ITEMS.*]

## WHAT IS LIFE?

G. V. BLACK, M. D., D.D.S.

In all the associated parts of the body life is maintained. What is life? Webster says: "That state of an animal or plant in which its organs are capable of performing their functions." This definition is based on certain physical attributes of life. It does not tell us what life is, only that life exists when certain phenomena are observed. We say a thing lives when we see that it performs certain movements or undergoes certain processes of growth and multiplication. While this may approach as nearly a definition as we are able to frame, every thinking man must admit that this is not life. There exists a power behind all these manifestations that we are unable to explain. What is it holds the elements of which our bodies are composed, and gives to the mass its physical form? What is it determines its cellular structure, and maintains each of these minute portions in its relations to the general mass? We say it is life. The work of nutrition is under the guidance of this peculiar force. Indeed, all the operations by which animal existence is maintained, is the work of life. Yet we can only recognize life through its manifestations. We cannot come in contact with life itself with our physical senses, though these senses constitute one of the highest endowments of life. Matter does not live. Life is a subtle power which invests matter with peculiar attributes, or rather, brings it into subjection for a time, and causes it to take on new and varied affinities leading to complex combinations for the formation of the wonderful forces which we know as animals and plants. Still in the higher sense matter does not live. This power is evident for the time in the animal or plant, and in our common modes of expression, we say, it lives; yet there is nothing there we can recognize by our physical senses but matter. The animal dies. That power we call life has departed, and all at once the phenomena of life have vanished. At the moment there may be no change in the matter, the organs of the body are each in their respective places; each individual cell maintains for a time its form and composition. Death does not change the physical form. It is simply the withdrawal of that power or force by which these combined phenomena have been carried on and the form constructed. Matter may properly be said to be vivified. It may be brought under the influence of the life force. The machinist may construct a compass for the mariner. He makes his handle of steel, but without the subtle power of magnetism it is useless. The electrician may store electricity in a Leyden jar, but such a jar is not electricity. He places a pointed steel to one of the knobs,—there is a flash—and that subtle power which was stored within is gone in an instant. As a jar is not electricity so the physical body is not life. Life is a force, which under certain conditions takes hold of

matter and moulds it into the physical forms of our bodies, so with the living forms which we see round us. The chemical affinities of matter are the playthings of life force. The molecule is torn asunder and compelled to reform with different groupings of the elements of which it was composed, that our bodies may be formed of their constituents. The roots of plants take mineral substances from the earth; the blades attract the elements of the atmosphere; and behold the grain has formed through newly acquired affinities and a peculiar combination of the elements. The grain is taken into the stomach; a process at once begins by which its elements are torn asunder and compelled to recombine in other molecular forms for the construction of our bodies. In the chemical laboratory of the life force, the elements of earth and air become grain—the elements of grain become man.—*Archives of Dentistry*.

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*The crying demand in this matter of artificial dentures*, is for improvement of all the methods we have, rather than seeking new devices. New things come along in the regular order of development faster than we can utilize them, and they have in some instances been a disadvantage in diverting from the value of the methods established by long usage. We are more anxious to find and learn new things, than to improve and perfect those we have. I have but little to say in respect to particular modes of work, but I am fully impressed with the fact that a return to some of the former methods of producing artificial substitutes is greatly to be desired. Perhaps not more than one in ten is prepared, or has the ability, to construct teeth on gold, continuous gum, or porcelain. Dentists gain much by becoming able to use well all the methods of inserting artificial teeth, so that the selection might be made best adapted to each case presented. No two cases require exactly the same method of procedure.—J. TART.

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*In articulating teeth*, the upper and lower front teeth should not be allowed to touch. The teeth should be placed, as a rule, over and a little to the inside of the lower plate. This will aid materially in preventing the rocking of the plate, and, in many cases, where atmospheric pressure is but slightly available, make mastication easy. In this way, in several instances, patients have been enabled to masticate at the first meal after their insertion, although, for a long period they have worn plates which were useless in this respect because the rule was broken, either from a desire on the part of the dentist to give them *tongue room*, or from an eagerness to restore their youthful appearance by making plumpers of the bicuspid and molar teeth.—AMBLER TEES.

DENTAL LAW IN KANSAS.—AN ACT TO REGULATE THE PRACTICE OF DENTISTRY, AND PUNISH VIOLATORS THEREOF.

*Be it enacted by the Legislature of the State of Kansas :*

SECTION 1. That it shall be unlawful for any person to practice or attempt to practice dentistry or dental surgery in the State of Kansas, without first having received a diploma from the faculty of some reputable dental college, school, or university department, duly authorized by the laws of this State or some other of the United States, or by the laws of some foreign government, and in which college, school, or university department, there was at the time of the issuance of such diploma, annually delivered a full course of lectures and instructions in dentistry or dental surgery: *Provided*, That nothing in section 1 of this act shall apply to any person engaged in the practice of dentistry or dental surgery in this state at the time of the passage of this act, except as hereinafter provided: *And provided further*, That nothing in this act shall be so construed as to prevent physicians, surgeons or others from extracting teeth.

SECTION 2. A board of examiners, consisting of four practicing dentists, residents of this State, is hereby created, who shall have authority to issue certificates to persons in the practice of dentistry or dental surgery in the State at the time of the passage of this act, and also to decide upon the validity of such diplomas as may be subsequently presented for registration, as hereinafter provided.

SECTION 3. The members of said board shall be appointed by the governor, and shall serve for a term of four years, excepting that the members of the board first appointed shall hold their offices as follows: Two for two and two for four years respectively, and until their successors are duly appointed. In case of vacancy occurring in said board, such vacancy shall be filled by appointment by the governor.

SECTION 4. Said board shall keep a record, in which shall be registered the names and residence or place of business of all persons authorized under this act to practice dentistry or dental surgery in this State. It shall elect one of its members president, and one secretary thereof, and it shall meet at least once in each year, and as much oftener, and at such times and places, as it may deem necessary. A majority of the members of said board shall constitute a quorum, and the proceedings thereof shall be at all times open for public inspection.

SECTION 5. Every person engaged in the practice of dentistry or dental surgery within this State at the time of the passage of this act, shall within six months thereafter cause his or her name and residence and place of business to be registered with said board of examiners, upon which said board shall issue to such person a certificate duly signed by a majority of the members of said board, and which cer-

tificate shall entitle the person to whom it is issued to all the rights and privileges set forth in section one of this act.

SECTION 6. Any person desiring to commence the practice of dentistry or dental surgery within this State after the passage of this act, shall, before commencing such practice, file for record in a book kept for such purpose, with said board of examiners, his or her diploma, or a duly authenticated copy thereof, the validity of which said board shall have power to determine. If accepted, said board shall issue to the person holding such diploma a certificate duly signed by all or a majority of the members of said board, and which certificate shall entitle the person to whom it is issued to all the rights and privileges set forth in section one of this act.

SECTION 7. To provide for the proper and effective enforcement of this act, said board of examiners shall be entitled to the following fees, to wit : For each certificate issued to persons engaged in practice in this State at the time of the passage of this act, the sum of three dollars. For each certificate issued to persons not engaged in the practice of dentistry in this State at the time of the passage of this act, the sum of ten dollars.

SECTION 8. The members of said board shall each receive the compensation of five dollars per day for each day actually engaged in the duties of their office, which, together with all other legitimate expenses incurred in the performance of such duties, shall be paid from fees received by the board under the provisions of this act, and no part of the expenses of said board shall at any time be paid out of the State treasury. All moneys in excess of said *per diem* allowance, and other expenses, shall be held by the secretary of said board as a special fund for meeting the expenses of said board, he giving such bond as the board shall from time to time direct, and such board shall make an annual report of its proceedings to the governor by the fifteenth day of December of each year, together with an account of all moneys received and disbursed by them in pursuance of this act.

SECTION 9. Any person who shall violate this act by practicing or by attempting to practice dentistry within the State without first complying with the provisions of this act, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined in a sum not less than ten dollars nor more than one hundred dollars.

SECTION 10. This act shall take effect and be in force from and after publication in the statutes.

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To be successful there must be a continued effort. Many men at the beginning are marvelously persistent, and here spend all their strength. At any rate they fail for lack of continual persistency.

## COHESIVE GOLD.

J. SMITH DODGE, JR., M.D., D.D.S.

The phrase "cohesive gold" contains a history, and without the history the phrase would be superfluous. It is as much a property of gold to be cohesive as to be yellow, only the yellowness has been always known, while the cohesiveness is a late discovery. The quality, therefore, intrinsic though it is, may be easily concealed, either by alloy or by superficial uncleanness, so that the very first demand for cohesive gold is that it should be pure within and without. The inward purity must depend on the manufacturer, but the dentist can himself secure a clean surface, and both are absolutely indispensable. I forget exactly what small percentage of alloy gold is said to bear without losing its cohesion. But I hope the manufacturers are not looking into this, for we want gold "1,000 fine," and nothing else. It should be understood that it is really this, and not any secret concoction, that makes one preparation better than another. Some sort of ingenious jugglery may make a slightly alloyed gold cohere, but given a good honest article, as pure as chemistry can make it, and when the surface is clean, it *must* stick.

Nor do I believe there is as much in the form of preparation as is often supposed. It is certain that somebody has been able to make superior fillings with each kind of gold that has ever been popular; and it is equally certain that nobody has used them all with the same success. It appears, therefore, that the value of each depends rather on its finding a hand to which it is just suited, than on any intrinsic superiority of the gold, provided always it be pure. Still, there is a plain reason for the very general preference given to foil over all other forms of cohesive gold. There is so much less surface to a given weight of gold that the labor of bringing all surfaces into contact is much less. Besides, it is no small part of success in filling to put just the right quantity of gold at a time under the plugger, and this is more easily and certainly done with foil than with anything else.—*Independent Practitioner.*

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Editor ITEMS:—In a "fit of desperation" I resorted to the idea suggested by Dr. Best in a previous ITEMS, of burring a series of small pits on the palatine surface of a plate, when "lo and behold," to repeat the expression of the patient, it "stuck and felt like a porous plaster."

This was a case of narrow, contracted, deep arch, with massive alveolar border, in which I found it impossible to secure adhesion by any other method.

ALTOONA, Pa.

W. B. MILLER.



## *Editorial.*

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### HOW TO KEEP WARM.

It is not by a great amount of clothing only that we are enabled to keep warm. The more we wear the more we shall need to wear, unless our apparel and habits are consistent with our purpose.

As dentists we are necessarily sedentary; so that, unless we wrap warmly when we expose ourselves to low temperatures, we lay the foundation for disease. But it is equally true that, as we come into the higher temperatures of our offices and our homes, if we do not relieve ourselves of this extra clothing, we shall be enfeebled, and, after a while, no amount of clothing is sufficient to make us comfortable. If we consider that we generally keep our offices as warm in winter as in the more pleasant days of summer, we shall perhaps realize that our clothing in winter, as well as in summer, should more nearly comport with this temperature while we are in it.

Then again, it is not the heaviest clothing that keeps us the warmest; quality has as much to do with this as quantity. Two or three thicknesses of paper under the vest on our back and chest, for instance, will sometimes be almost equal to an overcoat. The fabric of which our clothing is made should be studied.

Bathing and rubbing our surface to keep up a healthy condition of the skin has much to do in keeping warm, while it imparts a pleasurable glow to our feelings. Often, when the heavy overcoat and innumerable wraps fail to keep us warm and "comfortable," a thorough wash, followed by a still more thorough rubbing will make both overcoat and wraps feel a burden, and give us the exhilaration of fresh blood.

As you enter your office or home in cold weather, throw off your ordinary coat and boots and put on your gown and slippers. If your feet are inclined to be cold, then, just before retiring at night, run out into the cold, even in the snow, barefoot; and don't be in such a hurry to come in that you cannot have a good run. When you return, wipe your feet thoroughly and rub them vigorously, and get them warm. After a few weeks of such practice you will have little need to complain of cold feet, of tender feet, or of chilblains.

It is a pity it is not dignified for a man or woman to run; for it is one of the best promoters of genial warmth and vigor we have. By equalizing the circulation, it tends to relieve sluggish parts of diseased action; and, by stimulating the flow of blood, it clears the blood-vessels of obstructing, effete, and worn-out matter. It is a wonderful promoter of digestion, and, by inducing an extra activity of the lungs, fresh, rich blood is thrown to all parts of the system with such force it seems to impart new life.

## THE ORIGIN AND DEVELOPMENT OF THE TEETH IN INTRA-UTERINE LIFE.

The origin and development of the teeth in embryo can be better learned by the examination of subjects than by written accounts. Every dentist who has not seen teeth in various degrees of development should seek opportunities for examining subjects at our colleges and hospitals. By properly representing their motives, facilities will generally be given them, and a few visits of only an hour or two each is better than a long study from books, though the books should be thoroughly consulted during such examinations.

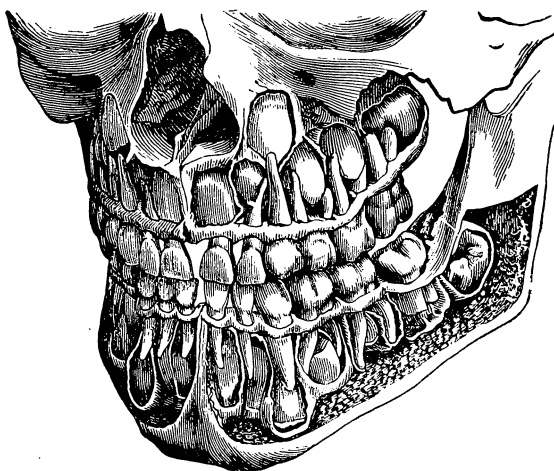
Here, for instance, is a seven-weeks anatomical embryo brought into the dissecting room. What a diminutive specimen? It is only one and a half inches long. And is it possible that in this—the whole head not a half inch in diameter—we can find preparation for the development of the teeth? Let us examine it. Yes; here along the two minute layers which are to be the jaws, are little specks, the enamel germs of future teeth. You do not see them? I do not wonder at that. None but an eye experienced to examine such tiny specimens, and to discriminate the special characteristics of different tissues, can see them. Here, let me place this magnifying glass over it. Now look. Along that little ridge can you not see specks of jelly? Those are the enamel germs. Come over to this table. Here is a three-and-a-half-month embryo. Let us here lay bare the little ridge of the future jaw, for it is in this delicate membrane covering it we shall find the specks corresponding to those of the other specimen. Ah, they are no longer germs here. They are quite like teeth, though very soft and little more than sacks of crowns. Yet in the cuspids and in the incisors the border line between the enamel germs and the dentine germs are decidedly marked, and there is a considerable deposit of lime. In two or three weeks such developments for the deciduous molars will be found. And these specks of lime are not precipitated as so much dust on their surface. They enter their substance and arrange themselves as though possessed of life, entering the meshes of film, which constitute the cells, with the ingenuity, precision and exact proportions of carbonate and phosphate of lime, etc., as though possessed of intelligence, and they so unite with the animal matrix as to form in the end a compound that, though it is not bone, it is harder and more enduring than any bone; and though it is only of the nature of the skin, the nails and the hair, it is unique from all of them and from all other tissues of the body. Those entering the matrix of the enamel arrange themselves differently to those particles which enter the more vascular meshes of dentine, and are composed of different proportions of earthy materials.

But what are these other specks which seem to be lying round

loose? If we had seen this three-and-a-half-month embryo subject three weeks sooner, we should have found only one of these extra specks on each of each jaw, and they would have indicated the commencement of the four first permanent molars. During the next week or two these little jelly-like globules multiply to twenty, showing the beginnings of all the permanent teeth, which, in time, are to replace the temporary. Now, at three-and-a-half months, this embryo has the four other specks referred to, showing the beginning of the first permanent molars.

But here comes a full-grown intra-uterine specimen. Let us see what of the teeth we shall find here. The powers of vitality have been so busy since the nineteenth week that all the deciduous teeth are now well-formed and quite structural, both in vascular net work of tissue and in the filling of the interstices with earthy ingredients. Not that all are equally matured; the incisors are nearly complete; the cuspids not quite as advanced; the first temporary molars, perhaps two-thirds completed; and the second deciduous molars with crowns calcified half their length.

As we have seen, the impression with many that the growth of the permanent teeth commences after birth and that they assume shape and size as the temporary teeth are shed, is untrue. As early as the fifteenth week of intra-uterine life, preparation commences for the formation of the first permanent molars, and from that time on, nature is busy forming them, till before birth, even the development of the third molars are well marked.



You seem puzzled over the heterogeneous muddle of temporary and permanent teeth in this forty weeks old embryo. No wonder. Such a crowding, and mixing, and promiscuous tumbling about

of 52 teeth in all degrees of development and in all sizes and shapes, is enough to confuse at least the uninitiated.

Were we to show them to you as they appear in a child six years old, you could form a better idea of their growth in the alveolus. Above we present such a specimen.

Even here you see much apparent confusion; but the wise Creator who caused the germs to appear in their order of time and place, directs their final course till each takes its proper position in the mouth.

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*The Germ Theory.*—A step farther is now taken by Prof. Hugo Engel of Philadelphia. We have not the pleasure of an acquaintance with this gentleman, but he is reported as saying, speaking of disease germs: "The majority of the observers incline to the belief that they must be classed to [with] the Vegetable Kingdom." Yet farther on he says, "there are many chemical processes known by the name of [known as] fermentations which have been [are] proven to depend upon the vital process of bacteria, or other micro-organisms related to them." We had supposed the process of these micro-organisms was, the process of death, not life, yet we are told here that fermentations "depend upon the *vital* process of bacteria, or other micro-organisms." Truly we are getting wise. We shall get nearer the truth perhaps by quoting Prof. Hugo Engel himself against himself. He says in another part of the same lecture from which we have just quoted: "But the enormous propagation of septic bacteria at once begin [begins] where death has interrupted the mechanism of life, and the organized tissue having ceased its motion, is decomposed, decays, ferments and putrifies." Thus making the process subsequent to death and consequent on the extinction of vitality.

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*The discovery of bacteria* two hundred years ago puts a new phase on this discussion. Is there nothing modern? Really, the pride of our scientists must be humiliated. It is true, according to the article on a nother page Bro. Clowes sends us, they were not then pictured with mighty jaws, and with teeth powerful enough to eat enamel, but their form and habits agree wonderfully with modern discoveries. With modern discoveries, indeed! Why, we have not yet ascertained the kingdom to which they belong—whether vegetable or animal! Shall we not therefore be modest in asserting their activities, powers and effects? As the boy said who found his dead dog full of maggots, "Father, did the dog eat those things, or did those things eat the dog?"

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*Do not expect* more patience, good humor and endurance in your patient than you are willing to show in your own conduct.

*Clean the mouth before filling the teeth*, should be a rule never neglected ; yet we know many dentists who never do it either before or after filling, unless requested to. We should not wait for a request, or even for permission, but take it for granted that a patient will not expect us to fill teeth in a dirty mouth. "But would you expect me to clean the teeth, remove the tartar and perhaps spend two hours on them for nothing?" Of course not ; make a reasonable charge for everything you do. But you had better spend the whole first appointment with a patient in preparing for the main work than wade about for two or three days in filth.

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*Capping Teeth.*—Some gentleman writes:

EDITOR ITEMS OF INTEREST:

"Please write an article on the capping and how to cap a tooth."

At first we supposed this note referred to capping the pulps of teeth ; then, that perhaps it had reference to the capping necks or roots of teeth with artificial crowns, but we finally conclude to take the request just as it reads, and give our mode of capping teeth. This will almost be repeating what we have recently said ; and yet many, with this man, may not have noticed our remarks.

If teeth are considerably shortened by ordinary mastication, by tobacco chewing, or by severe grinding during sleep, we treat such grinding surfaces just as we would cavities, and build up with gold or alloy. Under-cuts and grooves must be made where they will be unlikely to disturb the pulp, and not so near to the edge of the tooth as to cause the tooth substance to break away. Then build from the old surface till you restore the tooth to nearly its natural length. If the alloy is used, gutta-percha softened by heat, should first be built up in some out of the way place, but where, for a time, it will prevent the fillings from being disturbed by occlusion with apposing teeth.

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*Be truthful.* Do not say you are not going to hurt when you are ; do not say a disagreeable operation will be short when you know it will be tediously long ; and do not give encouragement by saying there are but few cavities to fill, and that the bill will be light, when you know both will exceed expectation.

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*Wanton Extracting of Teeth*—The following shows progress ; it indicates a warning to some dentists : A father said to us the other day when we recommended a certain dentist to him, "the only objection I have to him is that he is so fast to pull out teeth."

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*Men cannot hide their faults nor their virtues.*

### WHO ARE OUR GREAT MEN IN THE DENTAL PROFESSION?

It is true the profession is too young to have this question answered now as intelligently as it can be at the end of the century. But 1900 is only fifteen years away. Would it not be interesting to see what is the average judgment of dentists now on this question? Suppose our readers think about the subject awhile, and then answer on postal card the following four questions. Of course you are not supposed to know personally all our great men; but from all the sources of information you have, what three, in the order of merit (living or dead, in Europe or America) would you place in each of the following lists?

1. Who have attained the best reputation as dental operators?
2. Who have attained the best reputation in prosthetic dentistry?
3. Who have attained the best reputation for inventive skill?
4. Who have attained the best reputation in dental literature?

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*Physicians' Ignorance of Dentistry.*—Dr. Chupein, of Philadelphia, related several cases at the recent meeting of the Pennsylvania Association of Dental Surgeons on this subject. For instance, where physicians would come to him with patients suffering from erysipelas and neuralgia, when the whole cause of the trouble was an alveolar abscess. He relates an instance that reminds us of one similar in our own practice, both in the features of the case and in the wonderful advantages our better knowledge brought us: "Two physicians of celebrity were toning up an old lady for an operation for *necrosis of the lower jaw*, and but for her age would have performed a surgical operation. As it was, her age precluded this, but they had been dosing her for over a year to get her system in proper condition, with this end in view, her sufferings continuing in proportion to their increasing fees. The old lady came to my office with a patient of mine, and the above facts were related by her. An examination of her mouth revealed nothing pointing to necrosis of the jaw. I told her she had nothing to warrant the dosing with physic, much less any call for a surgical operation of magnitude. The whole trouble was the root of a lower molar tooth which had been broken in the effort to extract the tooth a long time previously, and had decayed away so as to be almost entirely covered by the gum. I extracted it for the old lady with very little effort. She expressed considerable gratitude, and sent me word she would never forget me. She has never had any more pain since it was extracted. The extent of this gratitude may be judged, for this same old lady, some months after this, requiring a set of teeth, went to a "cheap John" to have them made.

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*Be worthy* of the confidence of the community and you will soon have it.

## TERMS RESPECTING A TOOTH.

A dentist writes: "Please match the inclosed tooth, except in shade; let this be the color of the lower part of the sample." What is its match, and what is the lower part of the tooth? We think its match would be one like it, while its mate would be one proper to place by its side, and the lower part, that toward the neck. We speak of the lower part, bottom or foundation of a tooth cavity as that part toward the root, and the upper part, that nearest its cutting or grinding surface. What do others think? It is certainly desirable to have terms we use frequently used correctly.

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*Skill in the use of instruments* is quite as important as their possession. And yet we are continually looking for new instruments, new modes and new formulas, forgetting that defective results are too often caused by the poor use of the facilities we already have. It is the man behind the instrument that must be depended on more than the instrument. It is the intelligence thrown into the instrument—shaping, sharpening and directing it—that makes it cut its way to the accomplishment of the desired end. While, therefore, we seek to possess every facility for doing good work, let us not forget the necessity for skill in the use of the most homely tool, and be not contented with the use of any means without the skill to use that means to the best advantage.

"I always buy the best of everything," said a dentist to me once. And this was commendable. But he was a poor workman, nevertheless. His muffle furnace was of the best pattern for baking porcelain; yet he had but little use for it: "rubber plates were so much more easily made." He had all the paraphernalia for setting the most approved crowns, but "somehow," said he, "I use the old way, generally. There is a good deal of trouble connected with these new fangled notions." He had a dental engine, but generally preferred the hand burs. The fact was, he had all these facilities for doing the best work, but shrank from the necessary study, patience, labor, and time to acquire the requisite skill in their use. While that man was continually looking in the latest catalogue for new things, he was unqualified to use those in his possession. He was expecting of instruments a something that must be developed within himself, and which instruments cannot give—intelligence, skill.

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*Death from Methylene* is recorded in England. The ordinary bichloride was used, and a boy was the subject. Death seemed to be from strangulation. As he gasped for breath his head dropped and all color left his face. Medical assistance was summoned but death occurred before its arrival.

## NOTICES.

*Illinois State Dental Society* will hold their twenty-first annual meeting at Peoria, Ill., commencing Tuesday, May 12, 1885, continuing four days.

*The State Board of Dental Examiners* will be at the National Hotel at 10 A. M., Monday, May 11, at which time candidates for examination must present themselves punctually.

The examination will occupy till Thursday, May 14.

J. W. WASSAL, *Secretary*.

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*The Fifteenth Annual Convention* of the New Jersey State Dental Society will be held at Asbury Park, commencing July 15, continuing three or four days. Other States, as well as that State will be represented.

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*The Fifth District Dental Society*, of the State of New York, will hold its seventeenth annual meeting at Utica, Tuesday and Wednesday, April 7 and 8, 1885.

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*Nebraska State Dental Society* will meet at Lincoln, Tuesday, May 12, 1885, and continue in session three days.

W. F. ROSEMAN, *Secretary*.

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*The twenty-third annual meeting* of the Iowa State Dental Society will be held in Des Moines on the first Tuesday in May, continuing four days.

OFFICERS:—S. A. Garber, Tipton, President; L. E. Rogers, Ottumwa, Vice President; J. B. Monfort, Fairfield, Secretary; J. S. Kulp, Muscatine, Treasurer.

Every effort is being made to present an interesting programme; a large attendance is expected. A cordial welcome is given to members of the profession from other States.

J. B. MONFORT, *Secretary*.

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*Babyhood* is a monthly published at 18 Spruce street, New York, at \$1.50 a year. It is as interesting as it is unique; it fills a gap which now we wonder was not filled before. Mothers, subscribe for *Babyhood*, and you will wonder there is so much of real interest in this subject you have not known.

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*"School Hygiene in Tennessee"* is a pamphlet of value sent out by Daniel F. Wright, M. D., Clarksville, of the State Board of Health. How fortunate that such subjects are becoming so prominent, and that in discussing them, so much more experience and intelligence is shown.



## Miscellaneous.

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### WHERE IS THE MIND?

JAMES R. NICHOLS.

In studying man we are interested to discover, if possible, the hiding place of that subtle mind, without which material man could not exist. In vain we search through the organism open to the sense of sight, but the *mind* does not stamp impressions on any organ which are distinguishable to any human sense. We can trace nerve action and distinguish mind movements as a form of energy, peculiar in all its aspects; but as we search for its origin, it becomes like the spot where the rainbow touches the ground, it recedes as we advance, and a weary chase leaves us no nearer the object than when we commenced its pursuit.

The brain is usually considered the seat of the mind, the throne from which its commands go forth, and where the court of conscience holds its stormy sessions; but is satisfactory evidence afforded from the study of the physics of the brain that such is the fact? There are certain significant indications that the brain is the seat of what is known as nerve force, and that it is the "central office," toward which the telephonic system of nerve conductors all converge; but neither brain, nor nerve constitute any part of the spiritual man.

The human brain, in texture, color and chemical constitution, does not essentially differ from that of the dog or the horse; but in amount it fails to correspond, as in man the weight of the brain greatly exceeds that of dumb animals, the comparative weight of the body being considered. The near proximity of the central organs of sense to the brain meets no necessities, so far as affording rapidity of communication is involved, for nerve action or transmission is instantaneous. The prick of a pin on a toe, six feet from the brain, is felt simultaneously with a pain on the lip. There is no appreciable time consumed in transmitting sensations from one part of the body to another. The life principle is everywhere; and injury to the grouped molecules, wherever the blood circulates, is injury to the spiritual man, who dominates over matter. Man's connection with the external world, independent of his own organism, strikingly corresponds with the possibilities of the human body. He is at present practically everywhere; as a citizen of one city or municipality, he has but little closer communication with his neighbors, or even the members of his own household, than with those living on the opposite side of the globe. In crowding the air with his electrodes, so that great cities have the appearance of being enclosed in a huge spider's web, he only imitates the structural parts and functions of his body. The relations he sustains to this marvelous work of his hands, correspond with the relations of the spiritual man to the mechanism of the human organization. The physical man stands behind, and controls the electrical pathways and messengers of thought; so the spiritual man fulfils the same office in controlling the nerve forces, which have special duties to perform, to bring the body into communication with others of the race, and with external nature as a whole.

At one time, thirty years ago, there was a belief that different parts of the brain or cerebral hemisphere were the organs of the different mental faculties, and that external protuberances on the skull, indicated the position of the different faculties. But this fallacy lost its hold as soon as the vivisectionists pointed out that an animal will bear to have its cerebral hemisphere gradually sliced away; and the slicing may be done in any direction with the result of gradual stupification, but with no change of character corresponding to a special section or "phrenological organ" removed. Persons have recovered from wounds from which portions of the brain have protruded and been removed, but it makes no difference what part of the hemisphere is injured, no alteration results in the mental constitution of the patient. Beside, the hemispheres are not divided into organs; but, supposing such organs existed, it would be quite impossible to tell their size by the phrenological method.

Extended experiments have been made in freezing the brain of living animals, and it has been shown that, when by the use of freezing mixtures the living brain is frozen solid, the animal is not destroyed. Its powers may be retained in an ice-bound condition for hours, with every faculty practically dead; and yet, freed from the cold, they revive, and all come back as healthful as ever. This is a marvelous revelation; it seems to show that the mind is not wholly resident in the brain. The freezing of the body, as a whole, results in the prompt separation of mind and matter, and if the whole of mind was resident in the brain, freezing the nervous tissues would cause death. The human brain is largely composed of common water. Analysis shows that, on an average eighty-four per cent is water, and only sixteen per cent of other material. Therefore, when the brain is frozen, it is but little better than a globe of solid ice.

By the employment of highly volatile liquids, in the form of spray, portions of the brain have been frozen temporarily; that is, the portions which have been supposed to be the seat of distinct faculties, have been brought under the influence of frost, and sensation thereby locally destroyed. When the two lobes of the cerebrum, or larger brain, are frozen, the phenomena produced are those indicating entire loss of volition and of sensation, all that may be considered intelligence; there is a profound sleep, and surgical operations can be performed on the animal without pain. When smaller areas of the brain are brought under the influence of cold, the resulting phenomena vary in a remarkable manner, but the general effect is partial suspension of sensation.

*Sand bags* are a great convenience for the sick-room. Wash the sand and dry in a kettle. When wanted as heats for the back, the feet, or any other part, heat the sand and tie in these bags; have several that will hold from one to two quarts each. They are much more convenient than hot bricks or bottles of hot water, as they adapt themselves so much better to the parts to be warmed, and they retain the heat better. When a sweating heat is required, allow the heated sand to be moist. Some sew the sand in the bags, and when wanted heat bag and contents together. Of course, in this case caution must be used not to burn the bags. Sometimes an application of such a hot sand bag—perhaps preferably wet—is wonderfully soothing to pain incident to the forming stage of an alveolar abscess, and will frequently dissipate it.

## SICK HEADACHE.

FRANCIS F. BROWN, M. D.

Sick headache, migraine, is a neuralgia. This is not the popular impression. Sufferers from it attribute it to "biliousness." The nausea and vomiting is proof positive to them that their trouble is due to derangement of stomach and liver, and that the headache is consequent on it. This is not only the popular belief, but it was the doctrine of the systematic works till not many years since. In Wood and in Watson sick headache is discussed under the head of digestive derangements.

That this disorder is neurosis is evident from the behavior of the attack, its change in subsequent years into ordinary neuralgia, its local effects in some cases, and its hereditary character and connections with other neuroses.

First. I think no one can watch closely an attack of sick headache, especially if in his own person, without seeing evidence of its neuralgic character.

To begin with, there may be up to the time of the onset not the slightest symptom of gastric or hepatic derangement. The digestion may be perfect, the tongue clean, the bowels regular, there has been no error of diet; evidence of indigestion or faulty digestion may be entirely wanting, and, the attack over, the digestive organs resume their functions perfectly, and continue to do their duty well till temporarily suspended by another paroxysm. Some feel unusually well on the eve of an attack. One gentleman tells me: "I never feel better in my life than the evening before I have sick headache. I go to bed feeling first-rate." Persons subject to sick headache have usually premonitory symptoms which tells them an attack is impending. This is important to notice, because treatment, to be of avail to ward it off, must begin before the storm is in full blast. These premonitory symptoms are different in different persons, but are usually the same in the same person, so that the patient, although he cannot, perhaps, give a very clear description of his feelings, is made certain that one is coming. Some of them are sudden noises in the head, flashes of light or globes of fire before the eyes when they are closed, black spots, an appearance like a gauze veil quivering, ability to see only half an object, sleepiness, etc. Whatever they are the patient knows very well what they mean. Gradually or suddenly the pain comes on; it may be like a blow or in great waves advancing and receding. The pain may be principally in one eye or on one side of the head; it usually is worse on one side than the other, even when the whole head suffers. The pain deepens, nausea and vomiting occur, usually at first of mucus, and finally, if severe and prolonged, bile. This vomiting indicates the lowest point of depression of the vital forces. In some cases there is a tendency to sleep, from which the sufferer wakes only to retch and vomit. After a time the vomiting ceases, the nausea subsides, the headache diminishes, and if not gone by bed-time a good night's rest, in a majority of cases, finishes the cure. Soreness of the scalp at the seat of greatest pain may remain the next day if the attack has been severe, and soreness of the abdominal muscles if the vomiting has been prolonged is, naturally, to be expected. In a large majority of cases the whole course of the attack is passed through between sunrise and sunset

or a little later. Some, however, and these are usually the hereditary and severer cases, suffer for two or three days of extreme wretchedness before the storm blows over. It is evident that this is something very different from the headache which is consequent on gastric and hepatic derangement only.

Second. The neurotic character of sick headache is shown by its gradual change with the increasing age of the patient into ordinary neuralgia, preferably of the ophthalmic branch of the fifth nerve. These attacks, as one approaches fifty, become less severe, the nausea and vomiting less pronounced and less common, and what is left as a substitute is an occasional period of neuralgic pain through or over one eye or over one side of the head. At sixty sick headache ceases, as a rule. Anstie says it begins at the age of from fifteen to twenty-five. I think sometimes we see it—or something like it—in young children of neurotic ancestry.

Third. Another fact, as given by Anstie, showing its neuralgic character, is the results which sometimes follow on the track of the fifth nerve, which is the nerve most affected, and the seat of greatest pain, namely, iritis, ulceration of the cornea, blanching of the hair or eyebrow, local anæsthesia and periostitis of the frontal bone. The four latter of these occurred in Dr. Anstie's own person; the local anæsthesia remained permanent.

Fourth. Another point showing its character is the family relations of the disease. That it is often hereditary we all have had opportunities of observing, and the most intractable cases are among those who have had neurotic ancestors. It is closely allied with asthma and epilepsy, and is sometimes the precursor of the latter. It often occurs in persons among whose ancestors epilepsy has made its appearance. Careful inquiry shows that persons suffering from one of these frequently have had one or more of the others. These are the statements of Anstie in the very instructive article already referred to. I have under my own observation a case illustrating the close connection of migraine and asthma. The patient, a lady, has always been a great sufferer from sick headache, and cannot remember when she did not have it. Her mother was a like sufferer. For six years previous to 1882, she resided in Maine, and while there was comparatively free from migraine, but had asthma severely, from which she had been previously free. Since returning to Reading the migraine attacks have resumed their old frequency and severity, while the asthma has nearly but not wholly left her.

Sick headache is more frequently in women than in men, in those who are the subject of other neuralgias than the opposite, and in general is a disease of debility. To this latter statement there are apparent marked exceptions. Occasionally we find a subject of it who carries the appearance of robust health. My impression is that these cases usually belong to families who are subject to it or the allied neuroses. Notwithstanding these apparent exceptions it still remains true that the subjects of migraine or sick headache, as a class, are below par in health, and apt to be ill nourished and anæmic rather than otherwise. Many, it is well known, in whom the migrainous tendency is not strongly marked, remain tolerably free from attacks so long as their general health is good, but suffer frequently from them whenever their system becomes weakened and depressed.

The immediate occasion of an attack may be anything which tends to exhaust the system, especially overwork, which wearies the body while it taxes and worries the mind, and loss of sleep. Any slight deviation from one's usual routine, like a shopping excursion, or late hours, loss of a meal, or eating at an unusual hour, will induce an attack in some persons. Gastric derangements, like any other, will occasion them, but the notion that so-called "biliousness" is the great cause of sick headache is a mistaken one. The trouble commences at the other end of the line, and the nausea and vomiting are secondary. This does not lessen the importance of keeping the digestive system in good order. But in typical migraine I think exhaustion or loss of sleep is the occasion of ten attacks to one where indigestion is the cause. Undigested food is, I think, not usually seen in the vomit of migraine.

In treatment we aim, first, to avert an impending attack; second, to put the system into such a condition as to render it less liable to one.

First, to avert an impending attack, the most efficient remedies are guarana and caffeine. Thirty grains of the powder, or a teaspoonful of a good fluid-extract of guarana, or three or four grains of caffeine, should be given every twenty minutes or half hour till three doses are taken, unless the symptoms sooner show signs of abating. This is a point I wish to emphasize strongly; it is the key to their successful use, namely, to give full doses, and to give them in the very first threatenings of an attack. Your patient will generally know when one is coming. Usually it is useless to give them after the storm is in full blast, though sometimes I have thought its duration was thus somewhat lessened.

Attention to some minor points may aid in averting an attack. When the patient has undergone any unusual fatigue or loss of sleep, anything which his own experience leads him to suspect will be followed by sick headache, I think, I feel quite sure, that a full dose of bromide of potassium, thirty to sixty grains at bed-time, will lessen his liability to it. This drug is useless, it seems to me, after the attack has begun. Under the same circumstances, if the patient is at all constipated, an aloetic laxative, like the old fashioned *pil. Ruffi* (one at bed-time), is serviceable. If this has been neglected, a dose of citrate of magnesia may well be taken in the morning with the caffeine. This can usually be tolerated by the stomach. So trifling a matter as slight constipation appears at times to turn the scale under these circumstances.—*Med. and Sur. Journal.*

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*A Formula for Nervous Headache.*—Dr. A. L. Hodgdon, of Farmwell, Va., recommends the following recipe for nervous headache.

R Alcohol dilut.....	℥ iv.	Potass. bromid.....	℥ v.
Olei cinnomon.....	℥ iv.	Extr. hyoscyam.....	℥ jss.

S.—One to two teaspoonfuls, if required.

Dr. Hodgdon has used this combination with universal success. It is not disagreeable to take, and has no bad effects.

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*If your patient* is irritable and unreasonable, will you be the gainer by showing the same disposition?

## UNCLE ESEK'S WISDOM.

There is no rule for beauty; this enables every man to have a little better-looking wife than any of his neighbors.

I don't expect to please everybody; I don't know as I would if I could, for I don't think anybody but a fool could do it.

The last thing a man doubts is his judgment, when it ought to be the first thing he is suspicious of.

When the devil turns moralist look out for breakers; no one can tell where he is going to hit next; he can't even tell himself.

The world is all agog just now; everybody wants to talk and nobody wants to listen.

Ignorance is the principal ingredient in bigotry—obstinacy and a general cussedness complete the job.

It ain't so much the ignorance of mankind that makes them ridiculous, as the knowing so much that ain't so.

Jokes weren't made to cast before swine, any more than pearls were; and the man who can make them shouldn't throw them around too loose.

The man who can, in a few words, tell all he knows, on any subject, at a minute's notice, is a hard one to tangle.

It is the brains of the devil that makes him terrible; a fool devil is the lowest order of a crank.—*The Century*.

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 WORTH NOTING.

Saltpetre and olive oil will cure corns.

Vinegar will remove lime from carpets.

Quassia in sweetened water will destroy flies.

Wormwood or pennyroyal will drive out ants.

In dusting use a cloth; feathers only set it afloat.

Let sun shine in all rooms; it is better than medicine.

Frozen house-plants will revive if sprinkled with camphor water.

Tobacco tea will kill worms in flower-pots, and is also good for the plant.

For damp closets or cellars, put shallow dishes of unslacked lime, and change often.

Hold your broom upright; do not dig, but brush lightly. Carpet and broom will last twice as long.

Do not tack your bed-room carpets down, but take up and shake often. For any room, nice, large rugs are better than carpets.

One teaspoonful of chloride of lime in three quarts of water will take stains from white goods. Rats and mice avoid chloride of lime.

Sweep with broom slightly damp, and sometimes sprinkle on the side of the room a little hard-wood sawdust, moistened with strong brine, and sweep this before your broom.

How to detect glucose in a sugar mixture: Cane sugar has no effect on Fehling's solution, while a liquid containing glucose will throw down a red to yellowish precipitate of copper oxide in this re-agent

Black marble may thus be polished: Wash the marble with soap and warm water, and when it is dry rub it well with furniture paste or French polish, and then rub it over with an old silk handkerchief. After two or three trials the marble will become quite bright.

Bronze may be renovated and recolored by the use of a mixture of one part of muriatic acid with two parts of water. After the article is freed from all grease and dirt the diluted acid is carefully applied with a cloth. When the solution is dry the article is well polished with fine olive oil.

Rubber, or gutta-percha, may be united firmly to metal by the following method: Dissolve finely powdered shellac in ten times its weight in pure spirits of ammonia. In three days the cement will have the necessary consistency. The ammonia penetrates the rubber and enables the shellac to take a firm hold. When all the ammonia is evaporated the joint withstands the penetration of gas and water.

A good mucilage (such as we are now using on our desk) may be made by heating a pound of dextrine with a quart of water over a water-bath (or in any double-bottomed culinary vessel) till the dextrine is dissolved. Add one ounce of acetic acid, and a little oil of clove, or carbolic acid. This makes a transparent and adhesive paste or mucilage, which will keep indefinitely. For some purposes it may be well to use a little more dextrine, say eighteen or even twenty ounces to the quart of water. It must not be boiled. This spoils it.

Keep out the cold. Cracks in floors, round the mould board, or other parts of a room, may be neatly and permanently filled by thoroughly soaking newspapers in paste made of one pound of flour, three quarts of water, and a tablespoonful of alum, thoroughly boiled and mixed. The mixture will be about as thick as putty, and may be forced into the cracks with a case knife. It will harden like papier-mache.

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A good cement for splicing leather is gutta-percha dissolved in carbon disulphide, until it is of the thickness of treacle; the parts to be cemented must first be well thinned down, then pour a small quantity of the cement on both ends, spreading it well so as to fill the pores of the leather; warm the parts over a fire for about half a minute, apply them quickly together, and hammer well. The bottle containing the cement should be tightly corked and kept in a cool place.—*Scientific American*.

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*Asphaltum varnish* is the article for marking show cards. The letters may be first painted with India ink and the varnish put over them, but I use nothing but the varnish.—*Ex*.

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*Hiccough* is said to be easily cured by a piece of sugar moistened with vinegar.

## MUSK.

*The musk deer*, says Dr. Macgowan, is found throughout the mountains Yunan, Szechwan, and Thibet; it is a timid little animal, and often dies of fright. It feeds on juniper leaves and reptiles; snake bones are found in its stomach. In spring its glandular pouch is much swollen and inflamed. The secretion is discharged with the urine. Musk deer always resort to the same place for micturition, and cover their urine with earth. In such places deposits of a superior quality are found, amounting sometimes to fifteen catties (a catty is a Chinese weight of about one and one-third pounds). The article which is most prized falls from the musk deer onto the ground, and is gathered in grains that are as precious as pearls. These deposits are so pungent that, if carried through a garden or woods, it prevents fructification. The poisonous effect of fresh musk on vegetation is shown also by the blighted appearance of places which the musk deer selects for its convenience. For some distance round these places there is an absence of plants, and farther off the leaves exhibit a yellow tinge. This valuable substance no sooner leaves the hunter's hands than skilful manipulators adulterate the article for wholesale dealers, who further adulterate it for the trade, by which time it contains about 10 per cent. of genuine musk. Musk is said to be an anthelmintic, and to cure the bites of venomous serpents.—*Lancet*.

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*To Deodorize and Bleach Sponge*.—One of the best processes is said to be the following, which has for some time been in use at Bellevue Hospital: Soak the sponges, previously deprived of sand and dirt, by washing in a one-per-cent. solution of potassium permanganate; remove, wash thoroughly, and press. In order to bleach them, continue by placing them in a solution of one-half pound sodium hyposulphite in one gallon of water to which one ounce of oxalic acid has recently been added, and allow to remain fifteen minutes. Remove and wash thoroughly.—*Scientific American*.

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*Electricity*.—Whenever a force is exerted, no matter what its character, it is a force generated by the motion of electricity. Whenever a substance is expanded it is expanded by a current of electricity. Whenever any substance is given a different condition it is either because it is exhausted of its electricity or given a greater quantity, or has been more or less decomposed by it. Wherever the force of nature is observed, it is only a mere operation of this influence. No other force exists or can exist. Every substance in the universe is a condensation of this fluid, and capable of being converted into the fluid again. An explosion is but an instantaneous conversion of substance into this influence in part, and into what is but an approach to it, gases.

No person can be alive or conscious, or capable of moving, without this influence. When it is all out of the organization the being is dead.—*Problems of Nature*.

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*Remember*, excuses are generally but barricades behind which we show our weaknesses.